

BIOENGINEERING, INDUSTRIAL MATERIAL AND ITS PRODUCTION

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Abstract

PROBLEM TO BE SOLVED: To easily obtain a bioengineering material such as reinforcement of teeth and bones and an industrial material such as electric parts in a short time by heating and calcining a material such as apatite, ferroelectric barium titanate, ferroelectric calcium titanate and tricalcium phosphate which can be converted into ceramics, and electrifying the surface of the material by polarization treatment into negative or positive charges.

SOLUTION: After a material which can be converted into a ceramic material is heated and calcined, the material is brought into contact with an electrode to electrify the surface into positive or negative charges and then the material is cooled to room temp. to obtain a bioengineering or industrial material. It is preferable to calcine the material in water vapor because lattice $\text{HO} \leftrightarrow$ is not vaporized. The material which can be converted into a ceramic material is preferably calcined at 1,200 deg.C heating and calcining temp. till a crystal phase is produced and the material is preferably polarized at 200 to 350 deg.C with 100 to 120 V voltage applied. Hydroxyapatite ceramic chips are heated and calcined in water vapor to obtain a crystal, which is then polarized to produce the face N with negative charges on the surface so as to obtain an artificial bone.

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